

28 AUGUST 2014



Safety

**LAUNCH VEHICLE ON-BASE RISK
MITIGATION PRACTICES**

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

ACCESSIBILITY: Publications and forms are available for downloading or ordering on the e-Publishing website at www.e-Publishing.af.mil

RELEASABILITY: There are no releasability restrictions on this publication

OPR: 45 SW/SELR (Mr. Paul Rosati)

Certified by: 45 SW/SE
(Col Daniel F. Gottrich)

Supersedes: 45SWI91-204, 27 June 2009

Pages: 18

This instruction supplements the 45th Space Wing Instruction 91-206, *Danger Area Information Plan* (45 SWI 91-206), and the Installation Emergency Management Plan 10-2, Cape Canaveral Air Force Station (IEMP 10-2, CCAFS). Ensure that all records created as a result of processes prescribed in this publication are maintained IAW Air Force Manual (AFMAN) 33-363, *Management of Records*, and disposed of IAW Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS). Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using the AF Form 847, *Recommendation for Change of Publication*; route AF Forms 847 from the field through the appropriate functional chain of command. Submit requests for waivers through the chain of command to the Publication OPR for non-tiered compliance items.

SUMMARY OF CHANGES

Major changes include expanding upon the hazards associated with the catastrophic failure of a launch vehicle, to include toxic dispersion, distant focusing overpressure (DFO), and debris (inert/explosive). Appropriate mitigating actions for on-base personnel are discussed to ensure maximum launch opportunity for the Range User while ensuring the Commander's Safety Policy is met. Bioenvironmental Engineer (BE) support to Safety (45 SW/SE) is specifically addressed herein. Additionally, scripted announcements associated with these hazards have been updated.

1.	General Policy.	2
Figure 1.	Launch Shelter Sign	3

2.	Purpose.	4
3.	Structure.	4
4.	Roles and Responsibilities.	5
Attachment 1—GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION		9
Attachment 2—MESSAGE 1 - SCHEDULED LAUNCH ANNOUNCEMENT		10
Attachment 3—MESSAGE 2 - LAUNCH SHELTER IDENTIFICATION ANNOUNCEMENT		11
Attachment 4—MESSAGE 3 - RISK MITIGATION ANNOUNCEMENT		12
Attachment 5—MESSAGE 4 - ACCIDENT ANNOUNCEMENT		13
Attachment 6—MESSAGE 5 - TOXIC PLUME ANNOUNCEMENT		15
Attachment 7—MESSAGE 6 - ALL CLEAR ANNOUNCEMENT (FOR PERSONNEL OUTSIDE IDENTIFIED AFFECTED AREAS)		16
Attachment 8—MESSAGE 7 - ALL CLEAR ANNOUNCEMENT		17
Attachment 9—CAPE CANAVERAL AIR FORCE STATION AURAL WARNING ZONES		18

1. General Policy. All personnel must be protected from toxic dispersion, DFO, and inert/explosive debris (hereafter termed “launch hazards”) during launches from CCAFS and/or Kennedy Space Center (KSC).

1.1. Toxic Dispersion Hazard.

1.1.1. The exhaust plume from solid rocket motors (SRMs) and solid rocket boosters (SRBs) contains hazardous materials (primarily hydrogen chloride, an irritant gas). In the event of a catastrophic failure of a launch vehicle early in flight, hypergolic propellant (i.e., hydrazines, nitrogen tetroxide and their combustion products) may also be present. Under certain meteorological conditions, these hazardous substances may drift over Cape Canaveral Air Force Station (CCAFS) in concentrations greater than known exposure standards permit.

1.1.2. During day of launch (DOL) mission preparations, on-base personnel within the T-0 forecasted Potential Hazard Corridor (PHC) will be provided access to a launch toxic shelter, identified by a brown sign, to ensure they are not exposed to hazardous concentrations above known exposure limits. Alternatively, they will be relocated to an unaffected area.

Figure 1. Launch Shelter Sign**1.2. Distant Focusing Overpressure.**

1.2.1. In the event of a catastrophic launch vehicle failure resulting in a significant explosion, if certain meteorological conditions are prevalent, the emanating shock waves may be turned back towards the ground resulting in distant focusing overpressure (DFO). The focusing of these waves can produce increased overpressures at various locations resulting in window breakage and personnel injury.

1.2.2. On-base personnel in facilities that are within an area of increased DFO risk will be instructed to move to an interior portion of the facility or outside the facility, away from windows, approximately 5 minutes prior to T-0.

1.3. Debris Impact Hazard.

1.3.1. In the event of a catastrophic launch vehicle failure, the resulting debris associated with the vehicle will fall to the ground. Primary and secondary effects of inert and explosive debris impact may cause personnel injury.

1.3.2. On-base personnel in facilities or in the open that are within an area of increased debris (inert/explosive) risk will be instructed to relocate to an unaffected area.

1.4. Launch Risk Forecast. 45 SW/SE will provide a mission specific Launch Risk Forecast product that details the risks associated with launch hazards.

1.4.1. Launch risk estimates will be continuously updated in support of the launch operation with results posted on the 45 SW Launch Risk Forecast portal, <https://msd.mantech.com/RiskForecast>. To gain access to this site please contact 45 SW/SELR.

1.4.2. Generally, T-0 forecasted debris (inert/explosive) risk analysis will be available at L-72 hours. T-0 forecasted toxic dispersion risk analysis will be available at L-48 hours. Real-time DFO risk analysis will be available based on the DOL balloon release schedule. All risk analyses will be updated continually based on available meteorological data.

2. Purpose. This instruction establishes procedures to ensure that all CCAFS personnel and visitors can be protected from launch hazards resulting from any vehicle launched from either CCAFS or KSC.

3. Structure. This instruction covers required employee education, employee notification during launches, on-base risk mitigation for employees and visitors, and the responsibilities for the procedures provided in this instruction.

3.1. Employee Education. According to Air Force Instruction (AFI) 90-821, *Hazard Communication*, and the Hazard Communications (HAZCOM) Standard (29 Code of Federal Regulations (CFR) 1910.1200), all organizations at CCAFS will educate their employees concerning hazardous materials they may be exposed to on the job. This includes launch hazards awareness training for the entire CCAFS work force. Therefore, as part of the employee's initial in-processing and training, supervisors will ensure personnel are trained on the contents of this instruction. Contractors operating on CCAFS will educate employees in accordance with their contractual obligations and will be responsible for their own employee health and safety programs.

3.1.1. Once a new employee has received training, the supervisor will document this training in the employee's personnel records. In addition, supervisors will ensure employees know where their assigned launch toxic shelters are located for their place of duty along with what Aural Warning Zone (AWZ) it is located within, and will update the training as changes occur.

3.2. Employee Notification During Launches. Range Safety, 45 SW/SE, will evaluate the potential for launch hazard risk based on current meteorological conditions using 45 SW/SE physics models. 45 SW/SE will determine which CCAFS/KSC areas are at an increased risk by any or all of these hazards.

3.2.1. Scheduled Launch Announcement. Cape Support will broadcast Message 1 (Attachment 2) via the Cape Aural Warning System (CAWS) every 4 hours (i.e., twice per shift) starting 2 days prior to the scheduled launch, or later if the launch date is still classified at that time. On launch day, Cape Support will broadcast Message 1 at L-242 minutes and L-182 minutes. Cape Support will contact the Instrumentation Superintendent of Range Operations (ISRO) before each broadcast to avoid conflicting with operational announcements. This message alerts the CCAFS population of the upcoming launch and potential need for launch toxic shelters.

3.2.2. Launch Toxic Shelter Identification Announcement. If specific areas of CCAFS fall within the forecasted PHC, 45 SW/SE will advise Cape Support to broadcast applicable portions of Message 2 (Attachment 3), at L-122 minutes, L-97 minutes, and L-72 minutes. Before the first announcement, Cape Support will contact the ISRO for clearance to broadcast Message 2 on this schedule. If 45 SW/SE requires announcements on a different schedule, Cape Support will contact the ISRO for clearance before each broadcast.

3.3. On-base Risk Mitigation. All employees and visitors on CCAFS within the PHC and/or an area of increased risk from DFO or debris (inert/explosive) will be provided appropriate risk mitigation options, or will be required to relocate to another location. This ensures they are not exposed to hazardous chemical concentrations above known exposure

standards or to risk associated with glass breakage or debris (inert/explosive) impact resulting from the launch or catastrophic failure of the launch vehicle.

3.3.1. Risk Mitigation Announcement. If specific areas of CCAFS fall within the forecasted PHC or within an area of increased DFO risk, 45 SW/SE will advise Cape Support to broadcast applicable portions of Message 3 (Attachment 4), at L-57 minutes, L-32 minutes, and L-17 minutes. Before the first announcement, Cape Support will contact the ISRO for clearance to broadcast Message 3 on this schedule. If 45 SW/SE requires announcements on a different schedule, Cape Support will contact the ISRO for clearance before each broadcast.

4. Roles and Responsibilities.

4.1. **Identifying and Certifying Buildings as Launch Shelters for Mitigation of Toxic Hazards.** Buildings on CCAFS that meet the protection requirements for approved launch shelters have been identified. Additional buildings will be tested and designated as launch shelters as specified by 45 SW Instruction 91-203, *Launch Shelter Certification Process*.

4.1.1. A current listing of approved launch shelters can be provided by contacting 45 SW/SE. **Note:** This shelter list is continually under revision and will be updated on a regular basis.

4.2. **Launch Shelter Procedures for Mitigation of Toxic Hazards.** Facility Managers will establish procedures that prepare a certified launch shelter for launches. These procedures must address, as required, closing all doors and windows and turning off ventilation systems that draw air from the outside. Specific guidance on developing launch shelter procedures can be found in 45 SWI 91-203, *Launch Shelter Certification Process*.

4.2.1. During duty hours, all Facility Managers for buildings designed as launch shelters will be considered as launch essential and must ensure that their building is available for shelter.

4.2.2. During non-duty hours, shelters that would normally be unoccupied during the launch period need not be opened merely for shelter purposes and the Facility Manager or representative is not considered launch essential.

4.2.3. During launch operations when a shelter is opened (unlocked), a responsible person must be designated to ensure that all shelter procedures are effectively implemented for that facility.

4.2.4. All organizations must ensure that their employees know where appropriate launch shelters are located for their place of duty and have a clear understanding of the AWZs (Attachment 9). Supervisors must ensure employees know where their primary and alternate shelters are located for both normal duty hours and other than normal duty hours, or if the primary or alternate shelter is not available for the planned launch period.

4.2.5. Shelter activation will be based on T-0 forecasted and real-time meteorological data along with 45 SW/SE physics models. 45 SW/SE, in coordination with Bioenvironmental Engineering (BE), will continue to evaluate conditions and confirm which CCAFS areas are within the PHC.

4.3. Real-Time Notification.

4.3.1. After 45 SW/SE has determined affected areas, they will advise Cape Support to broadcast applicable portions of Message 3 (Attachment 4), via CAWS, at L-57 minutes, L-32 minutes, and L-17 minutes. Before the first announcement, Cape Support will contact the ISRO for clearance to broadcast Message 3 on this schedule; if 45 SW/SE requires announcements on other than the above schedule, Cape Support will contact the ISRO for clearance before each broadcast.

4.3.2. Upon receipt of Message 3, each Facility Manager in designated/approved launch shelters in affected areas will secure their building in accordance with established procedures. Organizational Commanders and/or managers, or their representative, in each facility will ensure that their employees are following the announcements as they are being conveyed via CAWS.

4.3.3. Personnel on CCAFS will proceed to their assigned shelters, or identified evacuation point, as dictated by the broadcast message. It is not necessary at this time to enter and remain in the shelter. Employees may observe the launch from areas immediately outside their shelter, as long as they can enter and secure the shelter without delay when necessary.

4.3.4. In the event of a catastrophic launch vehicle failure prior to time off the beach, Cape Support, upon direction from 45 SW/SE, will broadcast Message 4 (Attachment 5) as a precautionary measure, via CAWS, and will repeat it 10 and 20 minutes after the accident. All affected personnel, as designated by Message 4, will respond as directed. Each Facility Manager will ensure their shelter is secure with all doors and windows closed. Ventilation systems will be secured in accordance with the pre-approved facility launch shelter procedure checklist. Cape Support will contact the ISRO for clearance to broadcast Message 4 on this schedule.

4.3.5. In the event of a catastrophic launch vehicle failure prior to time off the beach when the exhaust plume affects specific areas of CCAFS, 45 SW/SE will advise Cape Support to broadcast Message 5 (Attachment 6), via CAWS, and will repeat as directed by 45 SW/SE. Before broadcasting, Cape Support will contact the ISRO to avoid conflicting with the Audible Plus Count system or other required operational messages. All personnel in the affected areas will enter their shelter at once. The Facility Manager will ensure the shelter is secured in accordance with the pre-approved facility launch shelter procedure checklist.

4.3.6. When 45 SW/SE, in coordination with Bioenvironmental Engineering and the Emergency Operations Center (EOC) Director, determines hazardous conditions no longer exist, 45 SW/SE will direct Cape Support to broadcast one of the applicable all-clear messages via CAWS, Message 6 (Attachment 7) or Message 7 (Attachment 8). At this time, normal activities may resume, ventilation systems may be restored, and normal access procedures reestablished. **Note:** To determine if a facility is inside an identified affected area prior to launch day, contact 45 SW/SELR at 494-3287.

4.3.7. In the event of a normal launch when pre-launch mitigating actions were required, to include the use of Message 2 (Attachment 3) and/or Message 3 (Attachment 4), Message 7 (Attachment 8) should be made no earlier than T+5 minutes to avoid conflict

with the Audible Plus Count system. Cape Support will contact the ISRO before broadcasting to avoid conflicting with required operational messages.

4.4. Launch Security Procedures. Launch Security will be posted according to the mission specific Operational Plan and Roadblock Access letter.

4.4.1. Launch Security vehicles that are equipped with public address systems and are on patrol within activated AWZs will be used to inform all personnel of their AWZ and the need to seek shelter. Launch Security personnel should comply with all CAWS announcements.

4.4.2. Launch Security Officers who observe individuals or groups gathering in non-approved areas (i.e., non-approved visitor locations as conveyed in the Launch Readiness Review, Mobile Service Towers, rooftops, antenna platforms, non-approved launch sheltering areas during sheltering conditions) to watch a launch will direct the individuals to disperse and proceed to their approved shelter, if required.

4.4.2.1. Launch Security Officers will inform the EOC Director of compliance with toxic sheltering announcements when announcements are required. As a member of the EOC Team, the Pad Safety Manager will convey field status to the Risk Assessment Center (RAC). This information will act as confirmation to the RAC that recommended mitigating actions are being taken.

4.4.3. Pre-coordinated Traffic Control Points (TCPs), as outlined in the Roadblock Access letter, may not be moved without 45 SW/SE approval in order to ensure personnel are not needlessly placed at risk.

4.4.4. If required, additional TCPs will be established to control access to areas within the PHC, using on-duty security patrols.

4.5. Official Visitor Procedures. Certain categories of individuals who do not directly support launch operations (i.e., distinguished guests, media, contractors, program representatives, and launch team family members), may be permitted on CCAFS to view launches. These persons will be included in all risk analyses and will be assessed against current launch commit criteria as given in AFI 91-217, *Space Safety and Mishap Prevention Program*, or 14 CFR 417, *Aeronautics and Space, Launch Safety*, as applicable.

4.5.1. Organizations that sponsor visitors for launch viewing must ensure that ALL visitors are aware of the following and adhere to section 4.5.1.6:

4.5.1.1. The AWZs provided at Attachment 9.

4.5.1.2. The messages contained in the attachments of this instruction.

4.5.1.3. The need to follow instructions conveyed in each CAWS message.

4.5.1.4. The location of the designated launch shelter or evacuation point, when applicable.

4.5.1.5. If sheltering is required in their AWZ and adequate sheltering is not available, visitors must proceed to an approved alternate viewing location.

4.5.1.6. Organizations sponsoring visitors, including distinguished guests and the media, must assign a point of contact (POC) for their visitors. It is the responsibility

of the visitor POC to call the Risk Assessment Center (RAC) at 853-8440 two hours prior to launch, or before departing for their designated viewing location, to verify that no sheltering issues exist and that they can populate their viewing location.

4.6. Launch Essential/Neighboring Operations Personnel Inside Affected Areas. Based on risk modeling output associated with launch hazards, the 45 SW/CC or designated representative will direct personnel to either evacuate the affected area, seek shelter in an approved launch shelter, or will halt the launch. Launch essential and/or neighboring operations personnel whose duties necessitate that they remain in place, either in the open or not in an approved launch toxic shelter, therefore not able to pre-clear from a PHC, must:

4.6.1. Have a 45 SW/SE approved post-accident emergency egress capability with egress routes based on real-time toxic modeling.

4.6.2. Be physically qualified, trained/certified, and equipped for use of a Self-Contained Breathing Apparatus (SCBA), the 45 SW Bioenvironmental Engineer (BE) approved personal protective equipment (PPE).

4.7. Bioenvironmental Engineer (BE) Support.

4.7.1. DOL BE (45 AMDS/SGPB) support is required for all vehicles launching from KSC or CCAFS that could pose a toxic dispersion risk, as determined by 45 SW/SELR. A BE representative in the RAC acts as the POC for the field team. The Field Support Team is deployed into the PHC and will take readings/samples in the case of a catastrophic failure of the launch vehicle.

4.7.1.1. The BE representative will review all 45 SW/SELR postings on the Launch Risk Forecast Portal and arrive at the RAC at least two hours prior to launch.

4.7.1.2. The BE Field Support Team will be in place, downwind of the PHC, at least one hour prior to launch.

4.7.1.3. All BE Field Support Team members will be physically qualified, trained/certified, and equipped to use SCBA.

4.7.1.4. In the case of a catastrophic launch vehicle failure prior to time off the beach, the field team will record real-time readings and may relay this information through their POC to the toxic dispersion risk analyst in the RAC. Additionally, BE will provide readings, to include corresponding concentrations (ppm) and toxic plume timing (min), to 45 SW/SE within 48 hours of the launch accident.

SHAWN C. FAIRHURST, Colonel, USAF
Vice Commander

Attachment 1**GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION*****References***

45SWI91-206, *Danger Area Information Plan*, 18 December 2012

45SW10-2 IEMP PAFB, *Installation Emergency Management Plan*, 10 April 2014

45SW10-2 IEMP CCAFS, *Installation Emergency Management Plan*, 10 April 2014

AFMAN33-363, *Management of Records*, 1 March 2008

AFI 33-360, *Publications and Forms Management*, 25 September 2013

AFI 91-217, *Space Safety and Mishap Prevention Program*, 17 Apr 2014

14 CFR 417, *Aeronautics and Space, Launch Safety*, 1 January 2012

45SWI91-203, *Launch Shelter Certification Process*, 10 August 2000

AFI90-821, *Hazard Communication (HAZCOM) Program*, 27 January 2014

Adopted Forms

AF Form 847, *Recommendation for Change of Publication*

Abbreviations and Acronyms

AWZ—Aural Warning Zone

BE—Bioenvironmental Engineer

CAWS—Cape Aural Warning System

CCAFS—Cape Canaveral Air Force Station

DFO—Distant Focusing Overpressure

DOL—Day of Launch

ISRO—Instrumentation Superintendent of Range Operations

KSC—Kennedy Space Center

PHC—Potential Hazard Corridor

POC—Point of Contact

RAC—Risk Assessment Center

SCBA—Self-Contained Breathing Apparatus

SEBs—Solid Rocket Boosters

SRMs—Solid Rocket Motors

TCP—Traffic Control Points

Attachment 2

MESSAGE 1 - SCHEDULED LAUNCH ANNOUNCEMENT

Figure A2.1. Message 1 - Scheduled Launch Announcement

Cape Support will broadcast this announcement via the Cape Aural Warning System across all Aural Warning Zones starting at L-48 hours, repeating every 4 hours. This schedule may be delayed if the launch date is classified; in this case, the first announcement will be made as soon as possible after release. On launch day, Cape Support will broadcast this announcement at L-242 minutes and L-182 minutes: 45 SW/SE will direct additional announcements as needed.

A LAUNCH FROM COMPLEX _____ IS SCHEDULED FOR _____ (*DATE*)
WE WILL USE THE CAPE AURAL WARNING SYSTEM TO ADVISE YOU OF
REQUIRED ACTIONS. YOUR COOPERATION IS ESSENTIAL TO AVOID PERSONAL
RISK OR INJURY.

(REPEAT ENTIRE ANNOUNCEMENT)

Note: Before each broadcast, Cape Support will contact the ISRO to avoid conflicting with
countdown announcements.

Attachment 3

MESSAGE 2 - LAUNCH SHELTER IDENTIFICATION ANNOUNCEMENT

Figure A3.1. Message 2 - Launch Shelter Identification Announcement

At the direction of 45 SW/SE, Cape Support will broadcast this announcement to affected Aural Warning Zones via the Cape Aural Warning System at L-122 minutes, L-97 minutes, and L-72 minutes.

ATTENTION EVERYONE IN AURAL WARNING ZONE(S): (45 SW/SE WILL SPECIFY AREA(S)) THE LAUNCH FROM COMPLEX _____ IS SCHEDULED FOR LIFTOFF AT APPROXIMATELY _____. EVERYONE WITHIN THESE AREAS MUST IDENTIFY THEIR LAUNCH TOXIC SHELTER. APPROVED LAUNCH TOXIC SHELTERS ARE IDENTIFIED WITH A BROWN SIGN AT THE MAIN FACILITY ENTRANCE. IF YOU ARE NOT IN AREAS JUST DESCRIBED, YOU MAY CONTINUE NORMAL OPERATIONS.

(REPEAT ENTIRE 45 SW/SE INSTRUCTED ANNOUNCEMENT)

Note: Cape Support will contact the ISRO before the first announcement and before each subsequent announcement on the above schedule.

Attachment 4

MESSAGE 3 - RISK MITIGATION ANNOUNCEMENT

Figure A4.1. Message 3 - Risk Mitigation Announcement

At the direction of 45 SW/SE, Cape Support will broadcast this announcement to affected Aural Warning Zones via the Cape Aural Warning System at L-57 minutes, L-32 minutes, and L-17 minutes.

A) ATTENTION EVERYONE IN AURAL WARNING ZONE(S): (45 SW/SE WILL SPECIFY AREA) THE LAUNCH FROM COMPLEX _____ IS SCHEDULED FOR LIFTOFF AT APPROXIMATELY _____. DUE TO THE RISK ASSOCIATED WITH TOXIC DISPERSION, PROCEED TO YOUR DESIGNATED LAUNCH TOXIC SHELTERS. APPROVED LAUNCH TOXIC SHELTERS ARE IDENTIFIED WITH A BROWN SIGN AT THE MAIN FACILITY ENTRANCE. YOU MUST LEAVE ALL OPEN HANGAR BAYS NOW. LAUNCH SHELTER MANAGER; ACTIVATE YOUR LAUNCH TOXIC SHELTER NOW. IF YOU ARE NOT IN LOCATIONS JUST DESCRIBED, YOU MAY CONTINUE NORMAL OPERATIONS.

B) ATTENTION EVERYONE IN AURAL WARNING ZONE(S): (45 SW/SE WILL SPECIFY AREA) THE LAUNCH FROM COMPLEX _____ IS SCHEDULED FOR LIFTOFF AT APPROXIMATELY _____. DUE TO THE RISK ASSOCIATED WITH DISTANT FOCUSING OVERPRESSURE, ALL AFFECTED PERSONNEL MUST MOVE AWAY FROM WINDOWS TO AN INTERIOR PORTION OF THEIR FACILITY OR OUTSIDE THE FACILITY APPROXIMATELY 5 MINUTES PRIOR TO T-0. IF YOU ARE NOT IN LOCATIONS JUST DESCRIBED, YOU MAY CONTINUE NORMAL OPERATIONS. (REPEAT ENTIRE 45 SW/SE INSTRUCTED ANNOUNCEMENT)

Note 1: Cape Support will contact the ISRO before the first announcement and before each subsequent announcement on the above schedule.

Note 2: Depending on vehicle configuration, launch day meteorological conditions, and affected areas, 45 SW/SE may specify message 3A, 3B, or both 3A and 3B in multiple/various AWZs.

Attachment 5

MESSAGE 4 - ACCIDENT ANNOUNCEMENT

Figure A5.1. Message 4 - Accident Announcement

At the direction of 45 SW/SE, in the case of a catastrophic launch abort, Cape Support will broadcast the following announcement via the Cape Aural Warning System across all Aural Warning Zones, repeating at T+10 minutes and T+20 minutes. 45 SW/SE will provide Cape Support with launch specific detailed messages by L-10 minutes.

A) ATTENTION EVERYONE AT CAPE CANAVERAL AIR FORCE STATION. YOU ARE IN NO IMMEDIATE DANGER FROM THE _____ ACCIDENT. REPEAT – YOU ARE IN NO IMMEDIATE DANGER FROM THE _____ ACCIDENT. AS A PRECAUTIONARY MEASURE, REMAIN IN PLACE. FURTHER INSTRUCTIONS WILL BE PROVIDED OVER THE CAPE AURAL WARNING SYSTEM.

B) ATTENTION EVERYONE AT CAPE CANAVERAL AIR FORCE STATION. THERE HAS BEEN A LAUNCH ACCIDENT INVOLVING THE _____ VEHICLE. EVERYONE IN AURAL WARNING ZONE(S) (45 SW/SE WILL SPECIFY AREA). ENTER AND REMAIN IN YOUR APPROVED LAUNCH TOXIC SHELTER. ALL OTHERS REMAIN IN PLACE AS A PRECAUTIONARY MEASURE. FURTHER INSTRUCTIONS WILL BE PROVIDED OVER THE CAPE AURAL WARNING SYSTEM.

C) ATTENTION EVERYONE AT CAPE CANAVERAL AIR FORCE STATION. THERE HAS BEEN A LAUNCH ACCIDENT INVOLVING THE _____ VEHICLE. LAUNCH ESSENTIAL PERSONNEL WITHIN THE FCA/FHA PROCEED ALONG YOUR EGRESS ROUTE AS APPLICABLE. ALL OTHERS REMAIN IN PLACE AS A PRECAUTIONARY MEASURE. FURTHER INSTRUCTIONS WILL BE PROVIDED OVER THE CAPE AURAL WARNING SYSTEM.

D) ATTENTION EVERYONE AT CAPE CANAVERAL AIR FORCE STATION. THERE HAS BEEN A LAUNCH ACCIDENT INVOLVING THE _____ VEHICLE. LAUNCH ESSENTIAL PERSONNEL WITHIN THE FCA/FHA PROCEED ALONG YOUR EGRESS ROUTE AS APPLICABLE. EVERYONE IN AURAL WARNING ZONE(S) (45 SW/SE WILL SPECIFY AREA). ENTER AND REMAIN IN YOUR APPROVED LAUNCH TOXIC SHELTER. ALL OTHERS REMAIN IN PLACE AS A PRECAUTIONARY MEASURE. FURTHER INSTRUCTIONS WILL BE PROVIDED OVER THE CAPE AURAL WARNING SYSTEM.

(REPEAT ENTIRE 45 SW/SE INSTRUCTED ANNOUNCEMENT)

Note 1: Before broadcasting, Cape Support will contact the ISRO to avoid conflicting with the Audible Plus Count system or other required operational messages.

Note 2: Depending on vehicle configuration, launch day meteorological conditions, and affected areas, 45 SW/SE will provide Cape Support with details for Message 4A, 4B, 4C, and/or 4D. 4A

will apply when toxic dispersion, DFO, and debris (inert/explosive) risk are not a concern. Message 4B will apply when toxic dispersion risk is an on-base concern. Message 4C will apply when debris (inert/explosive) risk is an on-base concern (personnel within Flight Caution Area (FCA)/ Flight Hazard Area (FHA)). Message 4D will apply when toxic dispersion risk and debris (inert/explosive) risk (personnel within FCA/FHA) are an on-base concern.

Attachment 6

MESSAGE 5 - TOXIC PLUME ANNOUNCEMENT

Figure A6.1. Message 5 - Toxic Plume Announcement

At the direction of 45 SW/SE, when specific areas of CCAFS are affected by the exhaust plume, Cape Support will broadcast this to affected Aural Warning Zones via the Cape Aural Warning System at 45 SW/SE specified time(s) (dependent upon estimated plume arrival and departure times):

ATTENTION EVERYONE IN AURAL WARNING ZONE(S): (45 SW/SE WILL SPECIFY AREA) THE EXHAUST PLUME WILL ARRIVE IN YOUR AREA AT APPROXIMATELY (45 SW/SE WILL SPECIFY TIME). YOU MUST BE IN AN APPROVED LAUNCH TOXIC SHELTER NOW. WE WILL NOTIFY YOU BY THE CAPE AURAL WARNING SYSTEM WHEN YOU MAY LEAVE THE SHELTER. DO NOT, REPEAT, DO NO ATTEMPT TO LEAVE THE CAPE.

(REPEAT ENTIRE 45 SW/SE INSTRUCTED ANNOUNCEMENT)

Note: Before broadcasting, Cape Support will contact the ISRO to avoid conflicting with the Audible Plus Count system or other required operational messages.

Attachment 7

MESSAGE 6 - ALL CLEAR ANNOUNCEMENT (FOR PERSONNEL OUTSIDE IDENTIFIED AFFECTED AREAS)**Figure A7.1. Message 6 - All Clear Announcement (For Personnel Outside Identified Affected Areas)**

At the direction of 45 SW/SE, Cape Support will broadcast the following announcement via the Cape Aural Warning system:

THIS IS AN ANNOUNCEMENT FOR EVERYONE AT CCAFS WHO IS LOCATED OUTSIDE (45 SW/SE WILL SPECIFY AREA). YOU MAY NOW RESUME NORMAL ACTIVITIES. PERSONNEL WITHIN THE AFFECTED AREA SHALL REMAIN IN THEIR CURRENT LOCATION UNTIL RETRIEVED BY EMERGENCY RESPONDERS. ALL OTHERS CONTINUE TO AVOID (45 SW/SE WILL SPECIFY AREA).

(REPEAT ENTIRE 45 SW/SE INSTRUCTED ANNOUNCEMENT)

Note 1: Before broadcasting, Cape Support will contact the ISRO to avoid conflicting with the Audible Plus Count system or other required operational messages.

Note 2: Upon agreement between 45 SW/SE, the EOC Director, and 45 AMDS/SGGB personnel outside of the affected area may be able to resume normal activities prior to the All Clear for the entire Cape.

Attachment 8**MESSAGE 7 - ALL CLEAR ANNOUNCEMENT****Figure A8.1. Message 7 - All Clear Announcement**

At the direction of 45 SW/SE, Cape Support will broadcast this announcement across all Aural Warning Zones via the Cape Aural Warning System:

THIS IS AN ANNOUNCEMENT FOR ALL EMPLOYEES AND VISITORS AT CAPE CANAVERAL AIR FORCE STATION. YOU MAY NOW RESUME NORMAL ACTIVITIES. REPEAT - YOU MAY NOW RESUME NORMAL ACTIVITIES.
(REPEAT ENTIRE 45 SW/SE INSTRUCTED ANNOUNCEMENT)

Note: Before broadcasting, Cape Support will contact the ISRO to avoid conflicting with the Audible Plus Count system or other required operational messages.

Note 2: Upon agreement between 45 SW/SE, the EOC Director, and 45 AMDS/SGGB personnel may resume normal activities.

Attachment 9

CAPE CANAVERAL AIR FORCE STATION AURAL WARNING ZONES

Figure A9.1. Cape Canaveral Air Force Station Aural Warning Zones

